DATARASE

The Datarase is a compact Eprom eraser that works much the same as other erasers but has several unique features. Most obvious is the lack of a drawer or clamshell to hold the Eproms. Two slots are provided into which one slides the Eproms to be erased. When not in use, each slot has a thin metal shutter that prevents the UV light from escaping. In this way the Eprom is placed very close to the lamp reducing the erase time and also allows one handed operation. The Datarase does not have a "start" button. It has an on-off slide switch. The "start" function required in Mercury vapor lamps does take place but it is automatic. You can observe a one or two second delay from the action of the switch to the lighting of the green indicator window. This green color is due to a polyimid filter used to block the UV light.

The Datarase will accept either 24 or 28 pin devices. The package should pushed down in the slot til it bottoms. The package is removed after erasure by finger pressure against the exposed leads. As with all MOS devices, care should be taken to assure that no built up static electricity charge is allowed to discharge through the Eprom. When inserting an Eprom in the Datarase always touch the metal case with fingers first before touching the Eprom to the case. This will assure that, if a static charge is present on your body, your fingers get zapped instead of the Eprom.

The erase time of the Datarase is comparable to that of other erasers. It is faster than some due to the proximity of lamp to Eprom. The Eprom manufacturers state in their data sheets that full erasure should be done by exposure to 15 watt seconds per square centimeter of 254 nano meter wavelength radiation. Actual erasure is achieved at much less exposure. In the Datarase most Fujitsu and Hitachi units start erasure after 45-75 seconds and show complete erasure after 60-100 seconds. As a general practise, we then consider a safe erase period as double the time it takes to reach this "threshold" of erasure. That is; if complete erasure is reached in one minute, a two minute erasure can be considered a "safe" erase time. Doubtless there are some Eproms that will require 15-20 min. erase time but we have not encountered any that had a threshold erase time greater than 10 min. To save your time we recommend checking your individual Eproms for threshold erase time. The manufacturers also state that the maximum UV dosage that an Eprom should withstand without permanent damage is the equivalent of 500 of the recommended erase cycles or roughly one week in an eraser. So, it would seem prudent to reduce the erase time if possible and extend your Eprom life as well as save your time. This faster erase does not damage the Eprom. In fact, some commercial erasers are now using high current Xenon flash lamps and achieving erasures in a few milli-seconds.

The Datarase components are all expected to have a lifetime many times that of the usage life. The lamp life is stated to be in excess of 6000 hours. The longest life tests that we have run were for 100 hours on time and 3000 on-off cycles and the erase times were 10-20% shorter after those tests.

WALLING CO.

The UV light leakage from the Datarase is roughly the same as the UV from a candle flame. Yes, a candle does emit a tiny amount of UV. Some blue light can be seen leaking by internal reflection but UV does not reflect well so very little of that escapes. The UV wavelength required for Eprom erasure is the 254 nano meter band most readily generated by low pressure Mercury vapor lamps. This is not the same as the "black light" lamps used for illuminating flourescent paints. That is the 356 nano meter wave length band also produced by the low pressure Mercury vapor arc and generally known as "longwave UV". The "shortwave UV" is not passed by glass or plastics. Fused quartz is required for the lamp envelope and because of the difficulty of working fused quartz, these lamps are relatively expensive.

Sunlight, flourescent lights, and, as mentioned, even candle flames emit a small amount of the 254 nm band of UV. Also, Eproms are affected to a small extent by the longwave UV. Because of this, it is possible for Eproms to be erased by long exposure to these sources. However, the time required is in the order of weeks or months. If your Eproms are going to be exposed to such light sources for extended periods it would be good to cover the quartz window with an opaque sticker. However, when erasing, be sure that no adhesive remains on the Eprom window for that too will block the shortwave UV. Even finger grease will attenuate it so it is best to clean the windows occasionally. Just polish them with a soft cloth or tissue. Don't worry about scratching the window since it is gem hard quartz or saphire.

The Datarase is a very simple devise. The electrical circuit consists of a lamp, capacitor, switch, and a one amp fuse in series. A MOV (Metal Oxide Varister) is also added in parallel with the lamp to protect it from overvoltage. On turn on, the lamp filament becomes red hot to heat the mercury. When enough mercury vapor is present, the "arc" appears and the characteristic blue-white light is seen. When the arc is established, the voltage across the lamp reduces so that the filament does not consume much power and the arc produces enough heat to maintain itself. The power drain is only about four watts.

The Datarase is designed to work at 115 VAC 60 Hz. It will work over a wide range of voltage input (80-140VAC) but the high end of this is testing the voltage limits of the capacitor. Also, the intensity of the UV emitted is nearly proportional to the input voltage and frequency. Thus, operation from an 80 VAC line will work but the erase times will be about 50% greater than normal. Similarly, operation from a 50 Hz line frequency would increase the erase times by 20%. To achieve the same nominal erase times on the European 220 VAC 50 Hz line current the capacitor must be changed to a 6 mfd 400 VDC metalized plastic type.

Datarase/T

The Datarase/T is identical to the Datarase with the addition of a built in, 2 to 8 minute solid state timer. It has a push switch to initiate the cycle and a screwdriver setable time adjustment. Tapping the switch once starts the cycle though it might take a second or two for the lamp to become bright. Repeated pressing of the switch will not alter the cycle length. The timer holds the power "on" til the timeout is complete. At that point the relay shunting the switch opens and the entire circuit is turned "off". The absolute time setting is not very accurate but any set time is repeatable within ± 5% over a wide temperature range.